

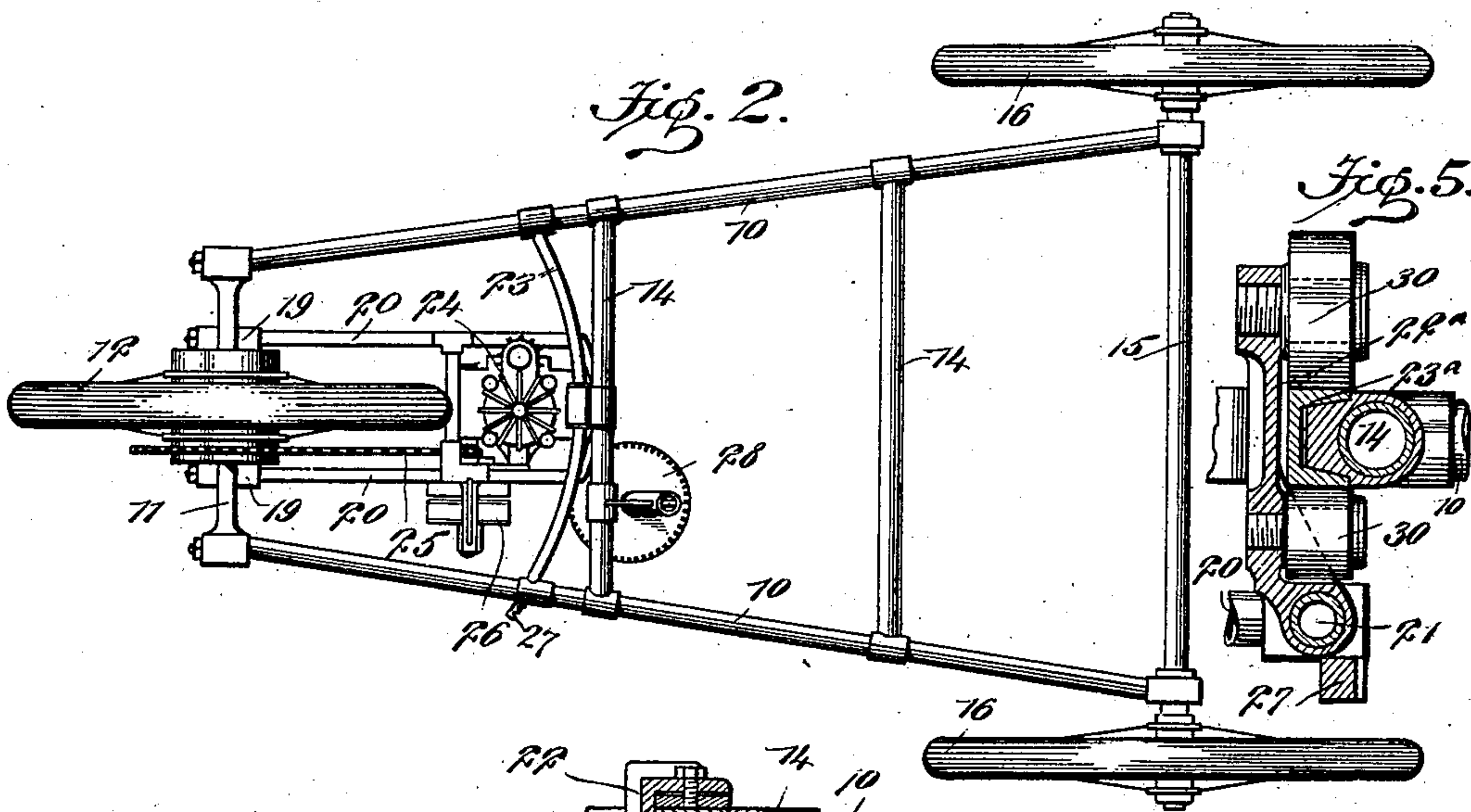
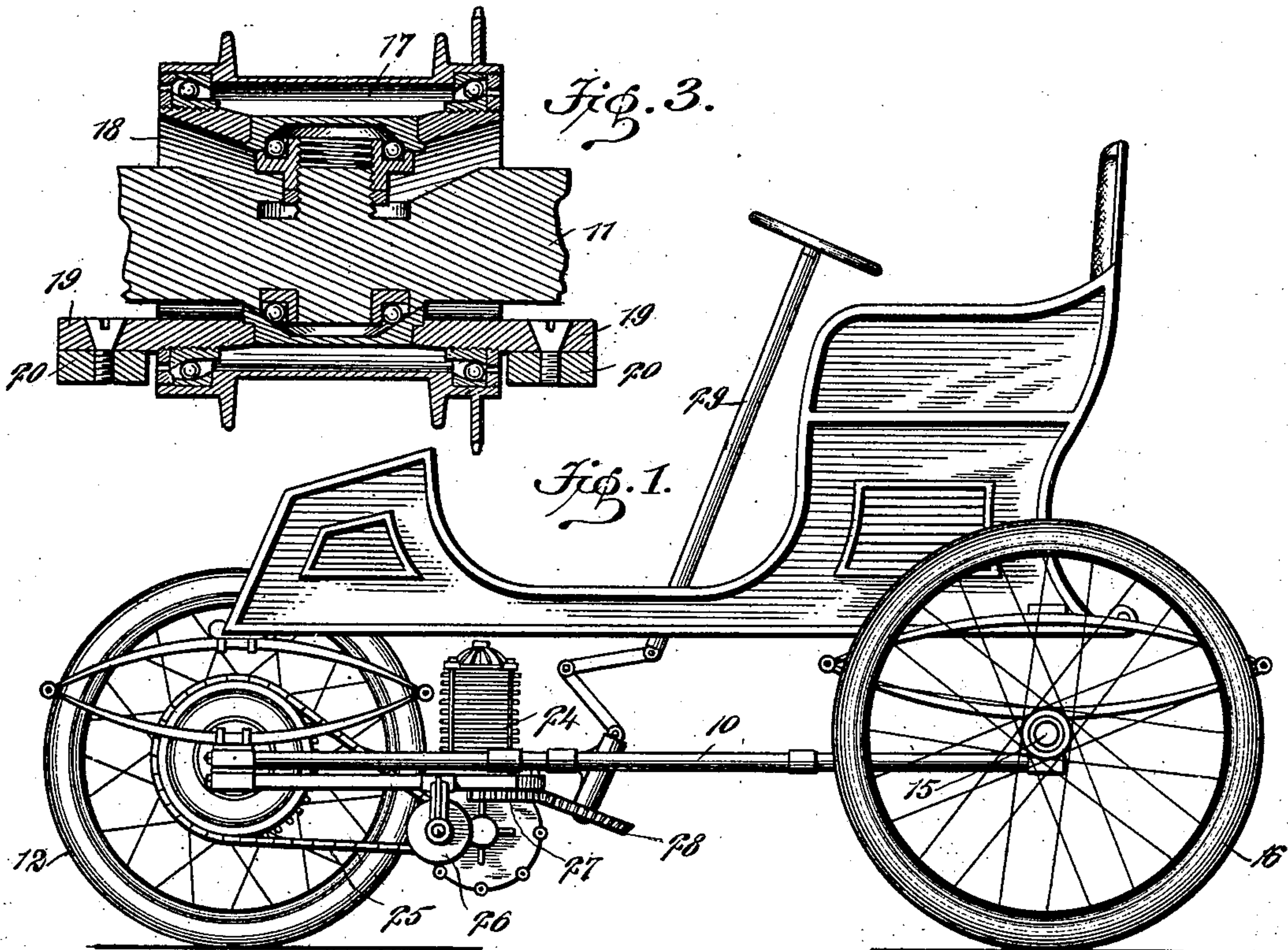
No. 712,001.

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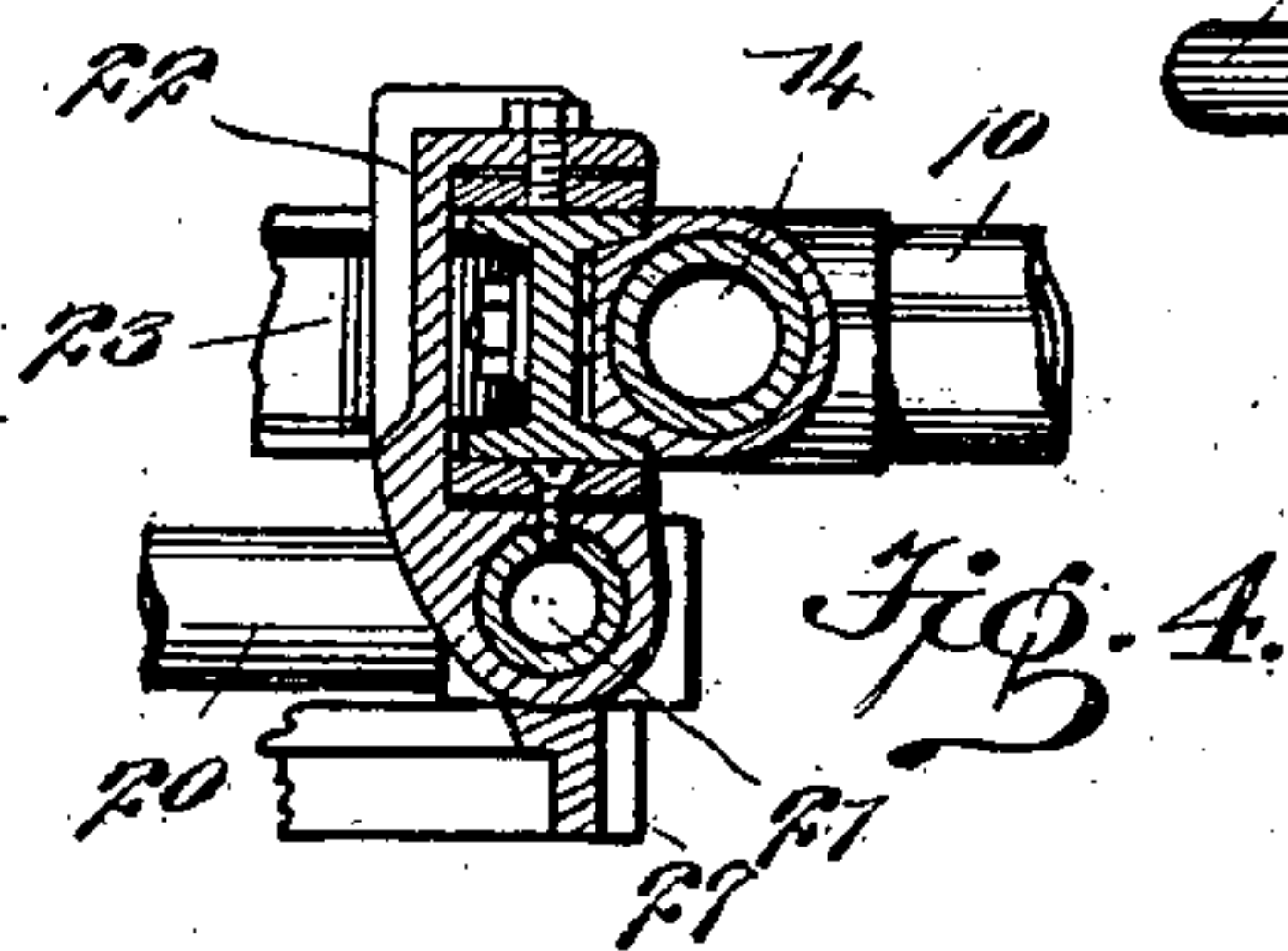
A. E. OSBORN.
MOTOR VEHICLE.

(Application filed Jan. 9, 1902.)

(No Model.)



WITNESSES:
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MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 712,001, dated October 28, 1902.

Application filed January 9, 1902. Serial No. 89,001. (No model.)

To all whom it may concern:

Be it known that I, ALDEN E. OSBORN, a citizen of the United States, and a resident of the city of New York, borough of the Bronx, in the county and State of New York, have invented new and useful Improvements in Motor-Vehicles, of which the following is a full, clear, and exact description.

This invention relates to various improvements in the framing of motor-vehicles, whereby the motor is mounted. The object is to effect as direct a connection as possible between the motor and a driving-wheel, which is also arranged to steer the vehicle. According to the present example of my invention the frame is of approximately triangular form, and the vehicle has three wheels, one serving as both a pilot or steering wheel and a driving-wheel, it being so mounted that it can turn in steering around an axis ranging across the true axis of the wheel, while the other two wheels simply support the other end of the vehicle and may be loosely mounted on a stationary axle. A motor-frame is provided which is connected with the wheel, so as to swing as the wheel turns around the said transverse axis, the swinging movement of the motor and the motor-frame being concentric to this axis.

This specification is a specific disclosure of one example of my invention, while the claims define the actual scope of the invention.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the vehicle. Fig. 2 is a plan view of the frame. Fig. 3 is a section showing the manner of mounting the wheel and the connection thereto of the motor-frame. Fig. 4 is a section showing the slidable connection between the motor-frame and the vehicle-frame proper, and Fig. 5 is a sectional view showing the application of antifriction-rollers to this connection.

The vehicle-frame, as best shown in Fig. 2, has side bars 10 converging toward the front of the machine and rigidly connected together by a short front axle 11. This axle passes continuously through the front wheel 12 and forms an unbroken connection between the

side bars 10 of the frame. Cross-bars 14 pass between the side bars 10 to strengthen the frame at intermediate points, and 15 indicates the rear axle, carrying the supporting-wheels 16 in any suitable manner, said wheels being shown as loose, although they may be connected to a motor and drive the vehicle as well as the front wheel.

The front wheel 12 has its hub 17 mounted to turn freely on a shell 18, the axis of this turning movement being the longitudinal axis of the axle 11, and the shell 18 is mounted to rock on the axle 11, the axis of the rocking movement being vertical and at right angles to the axle 11. Projected transversely from each end of the shell 18 is an arm 19, and to these arms are fastened in any suitable manner the longitudinal side bars 20 of the motor-frame. These side bars 20 extend rearwardly to a point adjacent to the front bar of the main frame and are there suitably connected together by a transverse cross-piece 21, (see Fig. 4,) this cross-piece carrying a slide 22, which runs on an arc-shaped guide 23, fastened rigidly to the side bars 10 and curved concentrically to the axis of the rocking movement of the shell 18.

24 indicates the motor, which may be of any suitable kind and form and the details of which I have not attempted to illustrate.

25 indicates a sprocket-chain used in this case between the motor, a transmission-gear 26, and a sprocket-wheel on the hub 17 of the wheel 12, said transmission-gear being of any suitable form and may or may not be employed, as desired. This transmission-gear forms no part of the present invention.

Now it will be seen that in driving the vehicle the force of the motor is transmitted to the front wheel 12, and this wheel therefore constitutes the traction or driving wheel of the vehicle. It will also be seen that in steering the vehicle the wheel 12 is slued with the shell 18 around the vertical axis of said shell, and this turning or sluing movement of the wheel 12 is necessarily coincident with the swinging of the motor-frame made up of the parts 20 and 21 around the turning axis of the shell 18, during which movement the slide 22 runs freely along the arc-shaped guide 23. According to the arrangement here shown the steering movement is transmitted

to the wheel 12 through the medium of the motor-frame, and any desired mechanism may be employed for this purpose. As here shown, a rack 27 is fastened to the motor-frame at the lower part thereof and meshed with a gear 28, mounted on the vehicle-frame and connected in any desired manner with a steering-shaft 29.

If desired, the slide 22 (shown in Fig. 4) may be changed to the form indicated at 22^a in Fig. 5 and antifriction-rollers 30 carried on this slide to run on the guide 23^a. Also it will be observed that in Fig. 4 the guide 23 is illustrated in I-beam form, and in Fig. 5 the guide 23^a is in channel-iron form. Various other modifications in the details of the device may be resorted to without in any way affecting the substance of the invention, such as changing the relative positions of the guide and motor, the guide being placed between the motor and wheel, or curving the frame-tube to correspond with the arc of the guide in order that it can serve the same purpose.

The advantages of this invention can be readily appreciated. It provides a single front wheel, which is both a driving and steering wheel, resulting in very easy running and great simplicity, as complicated equalizing arrangements are not required. It also obviates the dangerous tendency to skid possessed by all rear-driven vehicles, while at the same time mounting the propelling-motor so that it can drive the vehicle in the most direct manner possible, thus tending further to reduce the complication and expense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A vehicle, comprising side frame-bars converging toward one end of the frame, an unbroken axle fastened rigidly to the converged ends of said side bars and extending between them to connect them firmly together, a wheel mounted on the axle, said wheel being capable of rotary movement around the axle independently thereof to drive the vehicle and of sluing movement to steer the vehicle, both movements being independent of the axle, and a motor geared with the wheel to impart the driving movement thereto independently of the rigid axle.

2. In a vehicle, the combination of a frame, comprising a rigid axle, a wheel mounted on the axle, said wheel being capable of a rotary movement around the axle to drive the vehicle and also of a sluing movement on the axle to steer the vehicle, both movements being independent of the axle, and a motor geared with the wheel to impart the driving movement thereto independently of the rigid axle.

3. In a vehicle, the combination of a frame, comprising a rigid axle, a wheel mounted on the axle to rotate around it, whereby to drive the vehicle and also to slue on the axle to steer the vehicle, both movements being independent of the axle, a motor connected with the wheel to follow its sluing or steer-

ing movements, and a means for transmitting from the motor to the wheel the said driving movements of the wheel.

4. A vehicle, comprising side bars converging toward one end of the frame, an unbroken axle fastened rigidly to the converged ends of the side bars and extending between them to connect them firmly together, a wheel mounted on the axle, said wheel being capable of a turning movement around the axle to drive the vehicle and also of a sluing movement on the axle to steer the vehicle, both movements being independent of the axle, a motor connected to the wheel to follow its sluing or steering movements, and means for transmitting from the motor to the wheel the said driving movements of the wheel.

5. In a vehicle, the combination of a frame, comprising a rigid axle, a wheel mounted on the axle, said wheel being capable of a rotary movement around the axle to drive the vehicle and also of a sluing movement on the axle to steer the vehicle, both movements being independent of the axle, a motor, a motor-frame movably mounted on the vehicle-frame and connected to the wheel to follow its sluing or driving movements, and a means for transmitting from the motor to the wheel the driving movements of the latter.

6. A vehicle, comprising a main frame, a wheel, means for mounting the wheel, said means being rigid on the main frame, and said wheel being capable of rotary movement to drive the vehicle and of sluing movement to steer the vehicle, both movements being independent of the said mounting means, and a motor geared directly with the wheel, to impart its driving movement thereto.

7. A vehicle, comprising a main frame proper, a wheel mounted thereon, said wheel being capable of rotary movement to drive the vehicle and of sluing movement to steer the vehicle, a motor-frame connected with the wheel to follow the sluing or steering movements of the same, a motor carried on the motor-frame, and means for transmitting from the motor to the wheel the said driving movement thereof.

8. A vehicle comprising a main frame proper, a wheel mounted thereon, said wheel being capable of rotary movement to drive the vehicle and of sluing movement to steer the vehicle, a motor-frame connected with the wheel to follow the sluing or steering movements of the same, a motor carried on the motor-frame, means for transmitting from the motor to the wheel the said driving movement thereof, and means for imparting to the motor-frame movement to cause the sluing or steering movement of the wheel.

9. In a vehicle, the combination of a frame, comprising a rigid axle, a wheel mounted on the axle, said wheel being capable of a rotary movement around the axle to drive the vehicle, and also of a sluing movement on the axle to steer the vehicle, both movements being

independent of the axle, a motor, a motor-frame movably mounted on the vehicle-frame and connected to the wheel to follow its sluing or driving movements, a means for transmitting from the motor to the wheel the driving movements of the latter, and means for moving the motor-frame, whereby to impart to the wheel its sluing or steering movements.

10. In a vehicle, the combination of a frame, a wheel mounted thereon, said wheel being capable of rotary movement to drive the vehicle and of sluing movement to steer the vehicle, a motor-frame connected to the wheel to follow its sluing or steering movements, a guide on the vehicle-frame, a slide on the motor-frame, the slide running on the guide, a motor mounted on the motor-frame, and means for transmitting from the motor to the wheel the said driving movements of the wheel.

11. In a vehicle, the combination of a substantially triangular frame, a single front wheel, means for mounting the wheel on the frame, said means being rigid on the frame, and said wheel being capable of rotary movement to drive the vehicle and of sluing or

steering movement to steer the vehicle, both movements being independent of the wheel-mounting means, and a motor geared directly with the wheel, to impart said driving movement thereto.

12. A vehicle comprising a main frame, a wheel, means for mounting the wheel, said means being rigid on the main frame, and said wheel being capable of rotary movement to drive the vehicle and of sluing movement to steer the vehicle, both movements being independent of the said mounting means, a motor-frame movably mounted on the main frame and connected with the wheel, to follow the steering movements thereof, and a motor carried on the motor-frame and geared with the wheel, to impart the driving movement thereto.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALDEN E. OSBORN.

Witnesses:

JOHN H. GRATACAP,
W. W. OSBORN.